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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/661,275	09/12/2003	Bing Wang	3517-49	7602

29540 7590 04/05/2005

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EXAMINER	
HSIEH, SHIH WEN	
ART UNIT	**PAPER NUMBER**
2861	

DATE MAILED: 04/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

SM

Office Action Summary	Application No.	Applicant(s)	
	10/661,275	WANG ET AL.	
	Examiner	Art Unit	
	Shih-wen Hsieh	2861	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 September 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *1-8 and 12-14* is/are allowed.

6)☒ Claim(s) *9,10,15-17,19 and 20* is/are rejected.

7)☒ Claim(s) *11 and 18* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *9-12-03; 4-9-04; 9-12-03*
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

2. Please add a lead line to numeral 14 in fig. 1 just like the same along with numeral 16.

Specification

3. The disclosure is objected to because of the following informalities:

Numeral "4" stands for "head holder" and also for "carriage" in a number of places. Please use a consistency term.

Numeral "45" stands for preservation fluid. Please advise which drawing has the numeral 45.

Claim Objections

4. Claim 7 is objected to because of the following informalities:

Please change "form" in line 25 to "from".

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 9 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamaguchi (US Pat. No. 5,495,272) in view of Kobayashi et al. (US Pat. No. 6,338,539 B1).

In regard to:

Claim 15:

Yamaguchi teaches:

An ink jet recording apparatus comprising:

a head unit (14, figs. 1 and 2, in Yamaguchi ,he called 14 as a ink passageway substrate, it equivalents to an ink jet head) including:

a buffer tank (15, figs. 1 and 2, Yamaguchi called it a common ink chamber corresponds to the buffer tank in the instant application) for storing ink (1, fig. 2) including an ink outlet (not numbered, and is the places in figs. 1 and 2 where the ink passageways such as 7 interfaces with the common ink chamber) and an ink supply path, the ink supply path (not numbered in fig. 2, is main ink passageway connecting the ink tank 3 to the common ink chamber) being for connecting to an ink supply source (3, fig. 2), the buffer tank being filled with a preservation fluid before the head unit is used;, refer to col. 3, lines 21-37.

The device of Yamaguchi DIFFERS from claim 15 in that it does not teach the underlined portion above in this claim.

Ink tank as shown in Yamaguchi's fig. 2 is now filled with ink. However, a tank can also holds liquid other than ink such as cleaning liquid used to clean the head or a preservation liquid when the head is just fabricated and in a shipping stage.

To this end, Kobayashi et al. teach in their "Background of the invention" that an ink cartridge (corresponds to ink tank in Yamaguchi's invention) is filled with a liquid for shipping, refer to col. 1, line 60 to col. 2, line 8.

Therefore it would have been obvious to a person having ordinary skill in the art at the time the invention was made to fill Yamaguchi's ink tank with shipping liquid as taught by Kobayashi et al. for the purpose of preventing the print head from being dried and clogged with dust.

Yamaguchi further teaches:

an ink jet head (14, figs. 1 and 2) including a plurality of ejection nozzles (11, figs. 1 and 2) for ejecting ink that is supplied from the ink outlet onto a recording medium, refer to col. 3, lines 59-60 and col. 3, line 64 to col. 4, lines 1-4.

The device of Yamaguchi as modified in view of Kobayashi et al. teaches:

a fluid introducing unit that introduces the reservation fluid from the buffer tank into the ink jet head and **expels the preservation fluid from the ejection nozzles to make the head unit ready for use.**

Regarding to the fluid introducing unit, as discussed above, during the shipment of the ink jet head, the cartridge is filled with shipping liquid, therefore, the Yamaguchi's ink outlet (not numbered, and is the places in figs. 1 and 2 where the ink passageways such as 7 interfaces with the common ink chamber) under this condition is the fluid introducing unit, because the shipping liquid also take the same route as ink takes to reach to the common ink chamber (buffer tank in the instant application) from Yamaguchi's tank 3 and then from common ink chamber to the outlet through (7 and 8

of Yamaguchi's device) exits through nozzle 11. As to the bold portion above, please refer to Kobayashi et al.'s col. 2, lines 1-8.

Claim 9:

A method introducing ink into an unused head unit including: a buffer tank for storing ink, the buffer tank having an ink outlet and an ink supply path, ink supply path being for connecting to ink supply source; and an ink jet head having a plurality of ejection nozzles through which ink supplied from the ink outlet ejected onto a recording medium, the introducing method comprising:

maintaining the buffer tank filled with a preservation fluid before the head unit is used;

introducing the preservation fluid from the buffer tank into the ink jet head before introducing ink into the head unit;

expelling the preservation fluid from the ink jet head; and

introducing ink from the ink supply source into the ink jet head through the buffer tank.

Rejection:

This method claim is a claim corresponding to the apparatus claim, claim 15, and the method steps is deemed to be made obvious by the functions of the structure in the combination discussed above.

7. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamaguchi in view of Kobayashi et al. as applied to claim 15 above, and further in view of Mausner et al. (US Pat No. 3,856,711).

The device of Yamaguchi as modified in view of Kobayashi et al. DIFFERS from claim 16 in that it does not teach:

wherein the preservation fluid includes a surface active agent.

Mausner et al. teach liquid detergent compositions, which have excellent cleaning power for many commercial and consumer requirements including hard surface, having the important advantages of providing essentially 100% organic surfactant (equivalents to surface active agent) activity with the accompanying economic advantages in shipping and storage, refer to col. 7, lines 57-65.

Therefore it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the device of Yamaguchi as modified in view of Kobayashi et al. to include the liquid detergent compositions in the preservation liquid as taught by Mausner et al. for the purpose of providing an outstanding stability over prolonged periods of time over a wide temperature range to the device with which the preservation liquid with the Mausner et al.'s invention is used.

8. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamaguchi in view of Kobayashi et al. as applied to claim 15 above, and further in view of RD 194011 A.

The device of Yamaguchi as modified in view of Kobayashi et al. DIFFERS from claim 17 in that it does not teach:

wherein the ink supply source supplies ink that includes fluid and a coloring agent, the preservation fluid having the same composition as the fluid of the ink without the coloring agent.

RD 194011 A teaches "Multi-purpose dye-less ink for ink jet printers", in which a dye-less ink for ink jet printers can be used both as test fluid and shipping/storage fluif for the print head, refer to the Abstract.

Therefore it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the device of Yamaguchi as modified in view of Kobayashi et al. to include a dye-less ink as taught by RD 194011 A for the purpose of this type of liquid can be used in both shipping/storage and also for testing purpose.

9. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamaguchi in view of Kobayashi et al. as applied to claim 15 above, and further in view of Inoue et al. (US Pat. No. 5,619,237).

Yamaguchi further teaches:

wherein ink supply path of the buffer tank has an open end for connecting to the ink supply source, the ink jet head further includes a cover (12, fig. 5) that seals the plurality of nozzles, refer to fig. 1, where the open end is at the far left and has no numeral indicated.

The device of Yamaguchi as modified in view of Kobayashi et al. DIFFERS from claim 19 in that it does not teach:

the buffer tank further includes a cover that seals the open end of the ink supply path.

Inoue et al. teach in their col. 38, lines 40-42 that a cap member is used to cover an ink supply port of an ink container of an ink tank.

Therefore it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the device of Yamaguchi as modified in view of Kobayashi et al. to include a cap member as taught by Inoue et al. for the purpose of transporting the ink tank.

10. Claims 10 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kodama (US Pat. No. 4,356,499) in view of Hobson et al. (US Pat. No. 6,199,979 B1).

In regard to;

Claim 20:

Kodama teaches:

An ink jet recording apparatus for recording onto a recording medium, the ink jet recording apparatus comprising:

an ink supply source (fig. 1A, where marked "pressurized ink", col. 2, lines 58-59) that supplies ink;

a supply path (24, fig. 1A) connected to the ink supply source;

a buffer tank (26, fig. 1A, Kodama called it an ink manifold corresponding to the buffer tank in the instant application) that stores ink supplied from the ink supply source through the supply path, refer to col. 2, lines 58-62;

an ink jet head (1_n, fig. 2) having a plurality of ejection nozzles (1_1 to 1_8, fig. 2A) from which ink supplied from the buffer tank is ejected onto the recording medium, refer to col. 2, lines 62 to 68 and col. 3, lines 26-28;

a top lid member (fig. 1A, where the coupling 25 is disposed) forming at least a top wall of the buffer tank, the top lid member being formed with an ink inflow port (the place where connects to coupling 25) that is connected to the supply path, refer to col. 2, lines 58-62;

a bottom lid member (fig. 1A, where the coupling 27n is disposed) forming a bottom wall of the buffer tank, the bottom lid member being formed with an outlet (the place where connects to coupling 27n) for supplying ink to the ink jet head, refer to col. 2, lines 58-68.

The device of Kodama DIFFERS from claim 20 in that it does not teach:

a filter attached to the bottom lid to cover the ink outlet from inside the buffer tank, at least the filter having been subjected to a process for enhancing hydrophilic properties.

Filter is generally used in an ink tank so as to filtering out debris in supplying ink to the print head. In that sense, Hobson et al. teach an ink filter, which has the property of hydrophilic. However, Hobson et al. teach how to enhance the hydrophilic nature of the ink filter, refer to col. 8, lines 10-14.

Therefore it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the device of Kodama to include the method of enhancing the hydrophilic nature of the ink filter taught by Hobson et al. for the purpose of providing a high filtration efficiency at a very low resistance to ink flow.

Claim 10:

A method of manufacturing a buffer tank for an ink recording apparatus, the buffer tank being for holding that supplied from an ink supply source through a supply path and for supplying the ink to an ink head, the manufacturing method comprising:

preparing a bottom lid with an ink outlet for supplying ink to the ink jet head, the bottom lid having one side designated face inward when joined into the buffer tank ;

attaching a filter to the bottom lid so as to cover the ink outlet from the side designated to face inward;

preparing a top lid with an ink inflow port for receiving ink from the supply path;

subjecting at least the filter on the bottom lid to a process for enhancing hydrophilic properties; and

joining the bottom lid and top lid to form the buffer tank, wherein the filter is located inside the buffer tank.

Rejection:

This method claim is a claim corresponding to the apparatus claim, claim 20, and the method steps is deemed to be made obvious by the functions of the structure in the combination discussed above.

Allowable Subject Matter

11. Claims 1-8 and 12-14 are allowed.

12. Claims 11 and 18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

13. The following is a statement of reasons for the indication of allowable subject matter:

In regard to:

Claims 1-8:

The primary reason for the allowance of claims 1-8 is the inclusion of the method step of turning the head unit upside down with respect to the printing posture so that the second port is located in a lowermost position and the top wall slants down toward the second port. It is this step found in each of the claims, as they are claimed in the combination that has not been found, taught or suggested by the prior art of record, which makes these claims allowable over the prior art.

Claim 11:

The primary reason for the allowance of claim 11 is the inclusion of the /method step of wherein at least the filter subjected plasma processing. It is this step found in

this claim, as it is claimed in the combination that has not been found, taught or suggested by the prior art of record, which makes this claim allowable over the prior art.

Claims 12-14:

The primary reason for the allowance of claims 12-14 is the inclusion of the limitation of an ink inflow port formed in the top wall of the buffer tank, the ink inflow port having cylindrical shape and projecting down towards the bottom wall, the ink inflow port having a bottom end nearest the bottom wall, the bottom end being formed with a notch that faces towards the outflow port. It is this limitation found in each of the claims, as they are claimed in the combination that has not been found, taught or suggested by the prior art of record, which makes these claims allowable over the prior art.

Claim 18:

The primary reason for the allowance of claim 18 is the inclusion of the limitation of the filter having a mesh size small enough to prohibit the preservation fluid in the buffer tank from passing through the filter while the supply path is in a sealed condition. It is this limitation found in this claim, as it is claimed in the combination that has not been found, taught or suggested by the prior art of record, which makes this claim allowable over the prior art.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shih-wen Hsieh whose telephone number is 571-272-2256. The examiner can normally be reached on 7:30AM -5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dave Talbott can be reached on 571-272-1934. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SHIH-WEN HSIEH
PRIMARY EXAMINER

Shih-wen Hsieh
Primary Examiner
Art Unit 2861

SWH

March 30, 2005